MESHALKIN, Ye.N., prof.; MESHALKIN, I.N.; KELIN, Ye.P., kand.med.nauk;
SEMENOV, A.A.; YAGAFAROV, L.M. (Novosibirsk)

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1. Iz Instituta eksperimental'noy biologii i meditsiny Sibirskogo otdeleniya AN SSSR (dir. - prof. Ye.N.Meshalkin).
(MITRAL VALVE—SURGERY) (PULMONARY CIRCULATION)

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Testing diamond bits with double core assemblies. Burenie no.12:7-10 '64. (MIRA 18:5)

1. TSekh nauchno-issledovatel'skikh i proizvodstvennykh rabot neftepromyslovogo upravleniya "Ishimbayneft'".

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Economic evaluation of oil and gas fields. Izv. vysh. ucheb. zav.; neft' i gaz 6 no.3:113-118 '63. (MIRA 16:7)

1. Azerbaydzhanskiy institut nefti i khimii imeni Azizbekova.
(Petroleum industry)

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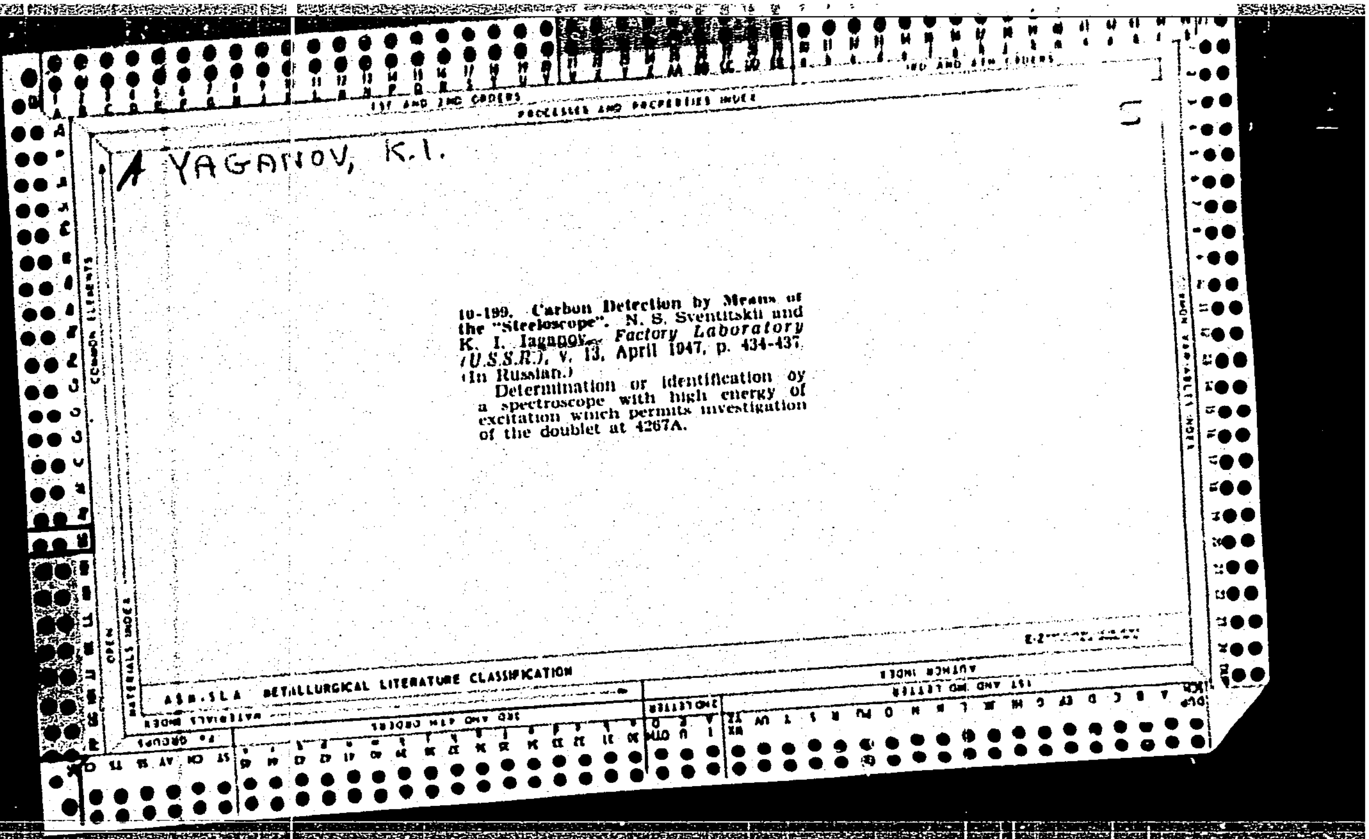
Investigating the causes of the freezing of moisture in the capillary tube and clogging of the filter in domestic electric refrigerators [with summary in English]. Khol. tekh. 35 no.1:53-56 Ja-F '58. (MIRA 11:2)

(Refrigerators)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COMMON ELEMENTS
OPEN
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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
AUTHOR INDEX
1ST AND 2ND LETTER

A YAGANOV, K.I.

5

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Determination or identification by a spectroscope with high energy of excitation which permits investigation of the doublet at 4267A.

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Investigating the flexure of unloaded semiaxles of motor vehicles.
Trudy Kaf.Avt.i trakt" VZMI no.2:69-87 '60. (MIRA 13:7)
(Motor vehicles--Axles--Testing)

YAGANT, A.I., kand.tekhn.nauk

Reduced moment of friction for a differential gear. Avt.prom. 31 no.4:33-36 Ap '65. (MIRA 18:5)

1. Moskovskiy avtomekhanicheskiy institut.

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Types of black saksaul growths in the central part of southeastern Kara Kum. Izv. AN Turk. SSR no.3:41-49 '58. (MIRA 11:9)

1.Turkmenskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Kara Kum--Saksaul)

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(Repetek--Geographical research)

YAGDYYEV, N.

Scientific base for studying deserts; on the 50th anniversary of the Repetek Sandy Desert Station of the Academy of Sciences of the Turkmen S.S.R. Vest. LGU 17 no.12:140-142 '62.
(MIRA 15:7)

(Deserts) (Repetek)

YAGDYYEV, N., otv. red.; MIKHEL'SON, A.O., red.; MYAGKOV, N.Ya., red.; NOVIKOV, G.S., red.; MAYOROVA, Yu.M., red. izd-va; IVONT'YEVA, G.A., tekhn. red.

[Work results of the Repetek Station for the Study of Sandy Desert Lands] Opyt raboty Repetekskoi peschano-pustynnoi stantsii. Ashkhabad, Izd-vo AN Turkm.SSR, 1963. 148 p. (MIRA 16:7)

1. Akademiya nauk Turkmenskoy SSR, Ashkhabad. Institut pustyn'. (Turkmenistan--Deserts)

NOVIKOV, G.S.; YAGDYYEV, N.

Repetek Sand Desert Station; on the 50th anniversary of its foundation. Izv. AN Turk. SSR.Ser. biol. nauk no.2:90-92 '62. (MIRA 17:4)

1. Institut pustyn' AN Turkmenskoy SSR.

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Blasting

Digging canals by breaking up the soil by mass blasting. Gidr. i mel. 4, No. 8, 1952

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Fundamental characteristics of the maximum function in a class of problems of parametric linear programming. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh.nauk no.4:382-402 '64. (MIRA 18:4)

1. Institut fiziki i astronomii AN Estonskoy SSR.

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Characteristics of the region of admissibility parameters in a class of problems of parametric linear programming. Izv. AN Est. SSR. Ser.fiz.-mat. i tekh.nauk 14 no.2:223-232 '65. (MIRA 19:1)

1. Institut fiziki i astronomii AN Estonskoy SSR. Submitted July 22, 1964.

ANDRIYEVSKIY, A.I.; ANTANOVICH, A.V.; BOGATYREV, N.A.; GLUSHCHENKO, I.P.; GUBENKO, T.P.; ZAMORA, Ye.F.; KARANDEYEV, K.B.; LUKIN, V.I.; LUKIN, N.I.; MAKSIMOVICH, N.G.; MOZER, V.F.; PETRENKO, S.I.; PAPERNYY, Ye.A.; PRIVALOVA, K.A.; SITNITSKIY, Yu.I.; STASIKOV, Ya.T.; SHCHEPANKEVICH, B.P.; CHUCHMAN, T.S.; YAGELLO, I.M.; BRILINSKIY, B.M. i dr.

G.E. Krushel'; obituary. Izv.vys.ucheb.zav.; energ. no.10:147 O '58. (MIRA 11:12)
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Memorandum to the firemen of industrial steam boilers. Prom. energ. 15 no.9:61 S '60. (MIRA 13:10)

(Boilers)

YAGEL'SKIY, A-N.

SHCHERBAN', Aleksandr Nazarovich; **YAGEL'SKIY**, Anatoliy Naumovich; **BARATOV**, Emil' Iosifovich; **ZIL'BAN**, M.S., redaktor; **KRYLOVSKAYA**, N.S., tekhnicheskiy redaktor.

[Simplified methods of making heat calculations for mine ventilation in Donets Basin coal mines] Uproshchennye sposoby teplovykh raschetov rudnichnogo vozdukha v shakhtakh Donbassa. Kiev, Izd-vo Akad. nauk USSR, 1954. 126 p. (MIRA 8:2)
(Mine ventilation)

SHCHERBAN', A.N.; KREMNEV, O.A.; CHERNOBYL'SKIY, I.I.; UCHASTKIN, P.V.; TETEREVNIKOV, V.N.; YAGEL'SKIY, A.N.; KUCHEROV, P.S., redaktor; TITKOV, B.S., redaktor izdatel'stva; ZHUKOVSKIY, A.D., tekhnicheskiy redaktor

[Cooling and drying of air in deep coal mines] Okhlazhdenie i osushenie vozdukha v glubokikh ugol'nykh shakhtakh. Pod obshchei red. A.N.Shcherbania i O.A.Kremneva. Kiev, Izd-vo Akademii nauk USSR, 1956. 271 p. (MLRA 9:12)

1. Chlen-korrespondent AN USSR (for Kucherov)
(Mine ventilation)

SHCHERBAN', Aleksandr Nazarovich, YAGEL'SKIY, Anatoliy Naumovich, BARATOV, Emil' Iosifovich, KUCHEROV, P.S., otv.red.; ZIL'BAN, M.S.,red.; SKLYAROVA, V.Ye. tekhn.red.

[Simplified methods for making thermal calculations for mine ventilation in Donets Basin mines] Uproshchennye sposoby teplovykh raschetov rudnichnogo vozdukha v shakhtakh Donbassa. Izd. 2., perer. i dop. Kiev, Izd-vo Akad.nauk USSR, 1958. 156 p. (MIRA 11:8)

1. Chlen-korrespondent AN USSR (for Kucherov)
(Donets Bassin--Mine ventilation)

21-58-5-13/28

AUTHOR: Yagel'skiy, A.N.

TITLE: A Method for Calculating Air Temperature in a Blini Mine Working (Metod raschëta temperatury vozdukha v tupikovoy gornoy vyrabotke)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 5, pp 519-522 (USSR)

ABSTRACT: The author presents a method for calculating the quantity of air used for ventilating the blind ends of mine workings and for estimating temperature changes under the effect of oxidation, thermal exchange, presence of people and operating machines, etc. Based on the differential equation of air motion derived by V.N. Voronin [Ref 2], the author gives a formula for calculating the quantity of air $V_{av.}$ moved along an air line by a ventilator:

$$V_{cep} = V_2 \left[1 + \frac{4}{5} \cdot \frac{u \pi d}{24 \ell_1} \sqrt{\frac{R}{\ell_1}} \ell^{\frac{3}{2}} + \frac{1}{4} \left(\frac{u \pi d}{24 \ell_1} \right)^2 \frac{R}{\ell_1} \ell^3 \right]$$

where d is diameter of the air line; ℓ_1 is the length of one section, ℓ is the total length of the air line in the blind mine working, R is the resistance of one section, V_2 is the quantity of air which arrives at the face of a blind working,

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21-58-5-13/28

A Method for Calculating Air Temperature in a Blind Mine Working

u is a coefficient that characterizes the degree of air line tightness. Other formulas given express the temperature differences due to heat exchange, oxidation, etc.
There is 1 sketch and 4 Soviet references.

ASSOCIATION: Institut gornogo dela AN UkrSSR (Institute of Mining of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, A.N. Shcherban'

SUBMITTED: September 24, 1957

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Air--Temperature factors

Card 2/2

21-58-7-11/27

AUTHOR: Yagel'skiy, A.N.

TITLE: A Method for Calculating the Required Refrigeration of a Heading Air-Cooling Installation (Metod raschëta potrebnosti v kholode prokhodcheskoy vozdukhookhladitel'noy ustanovki)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 7, pp 732-735 (USSR)

ABSTRACT: The author describes a method for calculating the required refrigeration capacity of an installation for air cooling in a heading, and applied it to three variants of its location: at the beginning, at the end and in the middle of the air line. The magnitude of the required refrigerating capacity of a heading air-cooling installation depends more, in addition to such known factors as rock temperature, dimensions of a heading and the quantity of ventilation air, on the following factors: 1) the density of the air line; 2) the shape of the air-cooling surface; 3) the location of the air cooler. In the process of designing, it is necessary to perform a number of variant calculations in order to select the most suitable design

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21-58-7-11/27

A Method for Calculating the Required Refrigeration of a Heading Air-Cooling Installation

of the installation for the given conditions. The author illustrates his method with calculations performed by him for a particular case of a 212-m long heading at a depth of 880 m. There is 1 sketch, 1 table and 4 Soviet refer-references.

ASSOCIATION: Institut gornogo dela AN UkrSSR (Institute of Mining of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, A.N. Shcherban'

SUBMITTED: February 3, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Air--Cooling 2. Refrigeration systems--Design 3. Mines --Cooling 4. Mathematics--Applications

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SOV/21-58-11-9/28

AUTHOR: Yagel'skiy, A.N.

TITLE: Heat and Mass Transfer and Aerodynamic Resistance in a Spiral Air-Cooling Coil (Teplo- i massoobmen i aerodinamicheskoye soprotivleniye v spiral'nom zmeyevikovom vozdukhookhladitele)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 11, pp 1190-1193 (USSR)

ABSTRACT: The author investigated the process of air cooling in a special experimental installation in which the cooling water circulated through a spiral coil. Altogether 162 experiments were performed with various combinations of the speed, temperature and relative moisture of the air. As a result of this investigation, empirical formulae were obtained for the heat and mass exchange, aerodynamic resistance and total coefficient of heat transfer, which may be used for designing spiral air-cooling coils for deep mines.
There are 2 diagrams and 2 Soviet references.

ASSOCIATION: Institut gornogo dela AN UkrSSR (Institute of Mining of the AS UkrSSR)

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SOV/21-58-11-9/28

Heat and Mass Transfer and Aerodynamic Resistance in a Spiral Air-Cooling Coil

PRESENTED: By Member of the AS UkrSSR, A.N. Shcherban

SUBMITTED: June 24, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

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PHASE I BOOK EXPLOITATION SOV/4906

Yagel'skiy, A. N.

Teplovyye raschety ventilyatsionnogo vozdukha vyrabotok s tupikovym zaboyem v glubokikh ugol'nykh shakhtakh (Thermal Calculations of the Air Ventilation in Passages of Dead-End Galleries in Deep Coal Mines) Moscow, Gosgortekhizdat, 1960. 143 p. Errata slip inserted. 2,000 copies printed.

Resp. Ed.: F. S. Klebanov; Ed. of Publishing House: A. P. Ratnikova; Tech. Ed.: O. G. Bekker.

PURPOSE: This book is intended for engineers, designers, manufacturers, and builders in the mining industry and for personnel of scientific-research institutes.

COVERAGE: The book describes a method for thermal calculation of the ventilating air in galleries of deep mines, which permits computing the air temperature in dead-end headings, analyzing the variation of the temperature as a function of various conditions and factors, and computing the refrigerating capacity of an air-cooling plant. Among

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the variables considered are the temperature differences between the rock formation and the ventilating air current, the evaporation of moisture, and the effects of the operation of machinery. Analyses of layouts of air-cooling plants, methods for air cooling in the space adjoining a heading, and sample thermal calculations for various ventilating conditions in the preparation of galleries are presented. Empirical data obtained from a number of mines in the Donets region are included. The author thanks A. N. Shcherbaniy, Academician, AS UkrSSR, and V. N. Kefer and A. Ye. Velichko, Engineers, for advice and comments in preparing the book for publication, and F. S. Klebanov, Candidate of Technical Sciences, for his assistance in the work on the book. There are 53 references: 42 Soviet, 8 German, and 3 English.

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  1. Galleries ventilated by a continuous current 7
  2. Galleries with a dead-end working face 12

YAGEL'SKIY, A. N., CAND TECH SCI, "~~INVESTIGATION~~ Study OF THERMAL CONDITIONS AND means of ~~FACILITIES FOR~~ CONDITIONING THE VENTILATION CURRENT IN the blind stopes [illegible] WORKING ~~BLIND-CUT~~S IN ~~THE~~ DEEP SHAFTS OF the DONBAS." KIEV, 1961. (MIN OF HIGHER AND SEC SPEC ED UkSSR, KHAR'KOV MINING INST). (KL, 3-61, 223).

KREMNEV, O.A., kand.tekhn.nauk; YAGEL'SKIY, A.N., inzh.

Resolutions of the section on conditioning mine air. Trudy Sem.po gor.teplotekh. no.3:128-132 '61. (MIRA 15:4)

1. Predsedatel' Vsesoyuznoy konferentsii po shakhtnoy ventilyatsii i ventilyatorostroyeniyu, Lugansk (for Kremnev). 2. Sekretar' Vsesoyuznoy konferentsii po shakhtnoy ventilyatsii i ventilyatorostroyeniyu, Lugansk (for Yagel'skiy).
(Mine ventilation)

YAGEMAN, D., inzhener.

Rotary kilns with a conveyer calcinator. Stroi.mat.izdel. i konstr. 1 no.12:35 D '55. (MLRA 9:7)
(Kilns, Rotary)

YACEMAN, D.

Important problems in the economics of the production of basic building materials. Vop. ekon. no.11:79-90 N '57. (MIRA 11:2)
(Building materials)

YAGEMAN, D.

Economic problems of power engineering. Vop. ekon. no.2:95-101
F '60. (MIRA 13:1)
(Power engineering)

YAGEMAN, D., inzh.

Visiting Czechoslovakian construction workers. NTO 5 no.2:57-59
F '63. (MIRA 16:3)
(Russia—Relations (General) with Czechoslovakia)
(Czechoslovakia—Construction industry)

YAGEMAN, D.N., inzh.

Make fuller use of the potentials for increasing labor productivity. TSement 30 no.5:1-2 S-O '64. (MIRA 17:12)

1. Instruktor otdela stroitel'stva TSentral'nogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza.

SOV/20-127-3-39/71

5(4)

AUTHOR: Yagfarov, M. Sh.

TITLE: A New Method of Determining the Thermal Characteristic and the Heat Effect on the Basis of Thermography

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 615-617 (USSR)

ABSTRACT: The here described method permits the simultaneous determination of specific heat, thermal conductivity, temperature conductivity, and heat effect. Measurement may be carried out very rapidly and within a wide temperature interval (of up to 1000°). Measuring results are recorded by means of a thermogram (temperature - time - diagram). Measurement is based upon the laws of the temperature field for quasi-steady heating. It analyzes the heat flow passing through the substance to be investigated. The measuring device is shown by figure 1. The substance to be investigated is placed between two coaxial cylinders. The outer cylinder serves the purpose of heating (production of a quasi-steady temperature field), and in the internal cylinder there is a substance with well-known specific heat, surrounded by a space of air with the specific standard heat. The temperature field is measured by means

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A New Method of Determining the Thermal Characteristic and the Heat Effect on the Basis of Thermography

of two differential thermometers; the second thermometer is connected with a simple thermometer which, at the same time, measures the rise in temperature of the substance. From the known specific heat of the metal and from a comparison of the differences in the temperature gradient it is possible to find the thermal conductivity of the substance to be investigated. From a mathematical analysis of the temperature field it is possible to calculate the required quantities from the following formulas: $a = \frac{\lambda}{C}$

(a = coefficient of temperature conductivity, λ - coefficient of thermal conductivity, C - volume heat capacity) and

$m.c_p = k.m_1c_{p_1}\frac{L_1}{L_2} - k.m_2c_{p_2}$ (where $m.c_p$ is the specific heat of the substance to be investigated, $m_1.c_{p_1}$ - the specific heat of the metal, $m_2.c_{p_2}$ - the specific heat of air,

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L_1 and L_2 - the deviations of the two differential lines from

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A New Method of Determining the Thermal Characteristic and the Heat Effect on the Basis of Thermography

the zero line, k - a constant produced from the dimensions of the measuring block), and for the determination of λ

$\lambda = m_1 c_p \frac{v}{\Delta t} \cdot K_1$ (v - heating velocity, Δt - temperature difference between the substance with known heat capacity and the standard (air)). Data concerning the heat capacity of KNO_3, which were determined on the device and calculated by means of the formulas mentioned, are given by the table. The error of measurement amounted to only 1%. If thermal constants are known, it is possible also to determine the heat effect, i.e. from the surface below the point of the differential thermogram. Also more simple varieties of the measuring block were worked out (Fig 1, b). There are 1 figure, 1 table, and 1 Soviet reference.

ASSOCIATION: Khimicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Chemical Institute of the Kazan' Branch of the Academy of Sciences, USSR)

PRESENTED: April 4, 1959, by B. A. Arbuzov, Academician

SUBMITTED: April 1, 1959

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YAGFAROV, M. Sh.

Cand Chem Sci - (diss) "Development of methods of quantitative differential thermography." Kazan', 1961. 15 pp; (Academy of Sciences USSR, Inst of General and Inorganic Chemistry imeni N. S. Kurnakov); 155 copies; price not given; list of author's works at end of text (12 entries); (KL, 6-61 sup, 200)

ЯГФАРОВ, М. Ш.

Report presented at the Conference on Heat and Transfer.
Minsk, USSR, 5-10 June 61.

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306. P. T. Smenkovskaya, External Heat and Mass Transfer at Drying of Food Stuffs by Freeze-Drying.

307. G. S. Konokotin, Heat and Mass Transfer at Freezing of Fish.

308. V. V. Kotelnikov, Investigation of Thermal Engineering Properties of Constructions under Natural Conditions.

309. K. S. Strelkova, Determination of Temperature on the Inner Surface of Panel Joints by Calculation Methods.

310. S. L. Frid, Basis Heat Transfer Problems at Large Water Engineering Structures Design.

311. M. Ya. Roitman, On Application of the Transient Heat Transfer Theory for Design of Refractoriness of Constructions.

312. Yu. P. Barsky, Investigation of Thermal Parameters of the Process of Ceramic Baking for Determination of the Optimum Baking Curve.

313. M. Sh. Yagfarov, Determination Methods of Thermal Values on the Basis of Quasi-Stationary Heating Regime.

314. A. B. Verzhinskaya, The Method of Constant Power Source.

315. P. G. Alekseev, Complex Determination of Thermal Properties of Polymers and Investigation of their Dependence on Temperature and Pressure.

316. B. P. Pashaev, Change of Thermal Conductivity of Some Metals and Alloys at Melting.

317. Kh. I. Amirkhanov, A. P. Adamov, L. N. Levina, Thermal Conductivity of Carbon Dioxide Along the Boundary Curve, Including the Critical Region.

318. D. N. Kolbasov, Investigation of Heat Transfer and Thermal Properties of Carbon Dioxide in the Critical Region of Thermodynamic State.

319. V. I. Petrovichev, L. S. Kokarev, New Transient Method of Heat Transfer Coefficient Measurement.

320. V. B. Leonas, Experimental Investigation of Heat Transfer under the Free Molecular Flow Conditions.

YAGFAROV, M.Sh.

Remarks on the political achievement of quasi-stationary heating conditions [with summary in English]. Inzh.-fiz. zhur. 4 no.9:90-93 S '61. (MIRA 14:8)

1. Khimicheskiy institut Kazanskogo filiala AN SSSR, g. Kazan'.
(Heat engineering)

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S/078/61/006/011/003/013
B101/B147

24.5500

AUTHOR: Yagfarov, M. Sh.

TITLE: New method of quantitative thermography

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 11, 1961, 2440-2443

TEXT: A description is given of a device for determining the specific heat c_p, the coefficient of thermal conductivity λ, the temperature coefficient a, and the thermal effect Q. A basic diagram of the device is shown in a figure. Unit (a) operates with internal standard (in the form of a cylinder), and (б) with intermediate standard (in the form of a hollow cylinder). Points 1 - 1; 1 - 2; 2 - 1; and 2 - 2 indicate the soldered joints of thermocouples. Metals with exactly known c_p are used as standards. The thermal characteristics are calculated from the following equations: $c_p = c_{p_1}(\gamma_1/\gamma)\Delta t_1 K_2(\Delta t_2 - \Delta t_1 K_1)$; $\lambda = \gamma_1 c_{p_1} v K_3/(\Delta t_2 - \Delta t_1 K_2)$; $a = v(r_1^2 - r_2^2)/4\Delta t$; $Q = 4S\lambda/r^2$. Here, c_{p_1}

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denotes the specific heat of the standard, γ_1, γ the densities of standard and sample, respectively, Δt_1, Δt_2 the temperature gradients measured with the first and the second thermocouple, respectively. K_1, K_2, K_3 are constants dependent on the dimensions of the device. v is the heating rate, r_1, r_2 are the radii of the two points of measurement with the temperature difference Δt; S is the peak area in the thermogram. Determination of c_p of KCl between 40 and 115°C showed a maximum spread of 1%. 5 - 40g of the substance is necessary for the determination. The method is applicable to powder and liquids alike. The principle of intermediate standard was also employed for the purpose of investigating flat, solid samples. Two standard plates were placed between two sample plates each. The main source of error was thermal resistances at the interfaces. They could be overcome by lubricants. The accuracy of results depends on a rectilinear increase of temperature, which was achieved by two series-connected autotransformers of the types ЛАТР-1 (LATR-1) or РНО(RNO). A third LATR was connected to the output terminals of one transformer, and set in rotation by an induction motor. The heater was

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New method of quantitative...

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connected to the terminals of the movable contact of the third and second (series-connected) transformers. There are 1 figure, 1 table, and 3 Soviet references.

SUBMITTED: August 8, 1960

Fig. Basic diagram of the units for (а) internal standard; (б) intermediate standard.

Legend: (1) metal cylinder; (2) substance to be investigated; (3) standard; (4) stoppers and sockets of heat-insulating material; (5) thermocouple in porcelain tube; (6) heat-insulating layers at the front of the standard; (7) sockets at the front of the standard.

X

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YAGFAROV, M.Sh.

Some application of thermography. Izv.Kazan.fil. AN SSSR. Ser.-khim.nauk no.6:244-247 '61. (MIRA 16:5)
(Thermal analysis)

YAGFAROV, M.Sh.

Principles of the new method of quantitative thermography, a method of an intermediate standard sample. Izv.Kazan.fil. AN SSSR. Ser.khim.nauk no.6:238-243 '61. (MIRA 16:5)
(Thermal analysis)

YAGFAROV, M.Sh.; BERG, L.G.

Straight-line heating. Izv.Kazan.fil. AN SSSR. Ser.khim.nauk no.6: 227-230 '61. (MIRA 16:5)

(Thermocouples) (Electric heating)

ACCESSION NR: AR4015649 S/0081/63/000/021/0028/0028

SOURCE: RZh. Khimiya, Abs. 21B159

AUTHOR: Berg, L. G.; Yagfarov, M. Sh.; Gortalova, T. A.

TITLE: A study of the dependence of the thermal characterisitics of some substances on temperature

CITED SOURCE: Izv. Kazansk. fil. AN SSSR. Ser. khim. n., no. 6, 1961, 231-237

TOPIC TAGS: temperature registration, thermographic temperature registration, thermal flux measurement, thermophysical characteristic measurement, temperature difference technique, heat capacity measurement, thermal conductivity measurement

ABSTRACT: The thermographic method for recording heating curves was used to determine heat capacity, the coefficient of thermal conductivity and temperature conductivity by measuring differences in thermal fluxes passing through the experimental substances and a standard control. The test unit containing both substances was heated in a quasi-stationary environment. Cylindrical, thin-walled, metallic shells were joined by means of a heat insulating material and were then placed inside a cylindrical block, in which a temperature field was created with a zero gradient on the exterior surface of the cylinder. The substance under investiga-

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ACCESSION NR: AR4015649

tion was placed inside one of these shells, the other serving as an air standard. The temperature field inside the block was measured with the aid of two differential thermocouples which recorded temperature differences between the shells as well as between the air standard and the block itself. The accuracy of measurement of the thermophysical characteristics was about 0.5% (verified for Al_2O_3 and KCl). L. Reznitskiy

DATE ACQ: 09Dec63 SUB CODE: CH ENCL: 00

Card 2/2

29123
S/020/61/140/005/020/022
B101/B110

11.2211

AUTHORS: Teytel'baum, B. Ya., Yagfarova, T. A., Dianov, M. P., and Gubanov, E. F.

TITLE: Study of thermal transformations of some rubbers by means of thermomechanical curves

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 5, 1961, 1132-1135

TEXT: The authors attempted the continuous recording of thermomechanical curves for rubbers by an improved method (B. Ya. Teytel'baum, Peredovoy nauchno-tekhnich. i proizv. opyt, Tsentr. inst. tekhn.-ek. inf., ser. 32, 1961, no.4/2). Recording was performed automatically under constant load and with uniform temperature increase in nitrogen atmosphere. An ЭПП-09 (EPP-09) electronic potentiometer was used as recorder. The recording chart was advanced according to the deformation. Rubber specimens (4 mm diameter, 2 mm height) were tested at -120 to +450°C. The rate of heating was 2 deg/min, the load 3.2 kg/cm^2. Deformation is indicated in relative percents. The following was found: (1) For all natural rubbers (smoked sheets), a "step" was observed on the curve corresponding to the melting

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S/020/61/140/005/020/022
Study of thermal transformations... B101/B110

of the crystalline phase at~0°C. If the sample is controlled by thermostat at the optimum crystallization temperature (-25°C), the step already appears for slight deformation. This confirms its relationship with the crystalline phase. Such an affect was not observed in any synthetic rubber. (2) Butadiene rubbers СКБ(SKB), СКВ(SKV), СКБМ(SKBM) and piperylene rubber СКП(SKP) synthesized by alkaline catalysts showed characteristic vitrification temperatures. The thermomechanical curves ascended immediately after exceeding the vitrification temperature. Thus, plastic deformation immediately occurs in these rubbers besides elastic deformation. (3) Butadiene rubber of the type СКЛД(SKLD) synthesized by a lithium catalyst and having low plasticity behaved differently. Fig. 3 shows thermomechanical curves for SKLD rubbers of high and low plasticity. Cross linking was found to occur by heating to 250°C. If SKLD rubbers of high plasticity were heated to 250°C, they showed the same thermomechanical curve as rubbers of low plasticity. Other butadiene rubbers such as SKB, СКД(SKD) (synthesized by a complex catalyst) behaved similarly. In natural rubbers, isoprene rubbers СКИ(SKI) and piperylene rubber SKP, no cross linking was attained by heating to 250°C. Therefore, butadiene rubbers may be easily distinguished from other rubbers by heating them to 250°C and

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S/020/61/140/005/020/022
B101/B110

Study of thermal transformations...

recording the thermomechanical curve. Cross linking occurs at 250°C in butadiene rubbers, while destruction takes place in pentadiene rubbers. The authors thank M. G. Beregovskaya for the supply of the specimens, and for a discussion. A paper by A. A. Tager et al. (Khim. prom. no. 4, 209 (1955)) is mentioned. There are 4 figures and 7 Soviet references.

ASSOCIATION: Khimicheskiy institut im. A. Ye. Arbuzova (Chemical Institute imeni A. Ye. Arbuzov); Institut organicheskoy khimii Kazanskogo filiala Akademii nauk SSSR (Institute of Organic Chemistry of the Kazan' Branch, Academy of Sciences USSR)

PRESENTED: May 19, 1961 by B. A. Arbuzov, Academician

SUBMITTED: April 13, 1961

Card 3/~~4~~3

15.9200

S/138/62/000/008/002/007
A051/A101

AUTHORS: Teytel'baum, B. Ya., Dianov, M. P., Beregovskaya, M. G., Yagfarova, T. A.

TITLE: Thermomechanical curves of several rubbers

PERIODICAL: Kauchuk i rezina, no. 8, 1962, 3 - 6

TEXT: The thermomechanical curves of several rubbers under various loads, within a temperature interval from -120 to +450°C, were recorded, using an automatic recorder. The method of continuous weight application was used. The resultant curves reflected the characteristic qualities of the investigated rubbers, leading to the derivation of certain quantitative units: T_g - vitrification temperature, T_f - fluidity temperature; and a relative evaluation of the degree of deformation of the material at any given temperature. The curves were plotted over temperature - deformation coordinates by a recorder designed at the Kazan' branch of the Academy of Sciences of the USSR. The thermomechanical curves produced are shown in figures. The СКД (SKD) curve is thought to be influenced by the presence of a crystalline phase. The figures obtained for this rubber under a

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S/138/62/000/008/002/007
A051/A101

Thermomechanical curves of several rubbers

32 kgf/cm^2 load were: T_g = -115°C, h_g (curve elevation) = 4.5%, T_f = -22°C, T_k (temperature of penetration) = -7°C. Under a 3.2 kgf/cm^2 load T_f = -16°C, T_k = =-1°C. There is 1 table, and one set of graphs.

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L 10830-63 EPR/EPF(c)/EWP(j)/EWT(m)/BDS--AFFTC/ASD--Pr-4/Ps-4/Pc-4--RM/WW
ACCESSION NR: AP3000755 S/0020/63/150/003/0608/0611 73

AUTHOR: Teytel'baum, B. Ya.; Yagfarova, T. A.; Anoshina, N. P.; Naumov, V. A. 72

TITLE: Multiple investigation of the crystallization of polychloroprene rubber - Nairit 16

SOURCE: AN SSSR. Doklady, v. 150, no. 3, 1963, 608-611

TOPIC TAGS: crystallization, polychloroprene rubber, elasticity, crystallinity

ABSTRACT: The crystallization process in Nairit was studied by thermo-mechanical, thermographic and X-ray methods. The deformation of freshly-prepared polymer faded out (indicating crystallization) in 15 minutes at 0°, in 2 hours at room temperature. Thermomechanical curves showed maximum crystallinity for unheated samples and maximum elasticity on heating to 50° and holding at room temperature for one hour, elasticity decreasing with prolonged holding. The plateau of the peaks in a thermogram is dependent on degree of crystallinity. Thermomechanical curves can be used to evaluate degree of crystallinity. Supplementary X-ray analyses are necessary to determine absolute percentage of crystallization. The kinetics of Nairit (and other elastomers) crystallization can be studied by a combination of these methods. Orig. art. has: 4 figures.

ASSOCIATION: Institute of Organic Chemistry of Academy of Sci.

Card 1/2

ACCESSION NR: AT4020707 S/0000/63/000/000/0160/0165

AUTHOR: Krivosheyeva, I. A.; Razumov, A. I.; Teytel'baum, B. Ya.; Yagfarova, T. A.

TITLE: Studies on the derivatives of phosphonic and phosphonous acids. XIX. Study of the polymerization of the butyl- and allyl-isopropenyl esters of ethylphosphonic acid

SOURCE: Karbotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Carbon-chain macromolecular compounds); sbornik statey. Moscow, Izd-vo AN SSSR, 1963, 160-165

TOPIC TAGS: phosphonic acid, phosphonous acid, butyl isopropenyl ester, ally isopropenyl ester, axodiisobutyronitrile, copolymerication, styrene, methylmethacrylate, acrylonitrile ethylphosphonic acid

ABSTRACT: The effect of the isopropenyl group on the polymerizability of esters was investigated by carrying out block polymerization of ethylphosphonates in the presence of 0.5, 1, 2, 3 and 5 mol. % axodiisobutyronitrile as an initiator at 50C for 150 hours or at 70C for 50 hours, in the presence of 1 mol. % benzoyl peroxide at 50C for 90 hours, and in the presence of 2 mol. % titanium tetrachloride in a methylene chloride medium at 50C. All experiments were carried out in an atmosphere of nitrogen. The allyl isopropenyl ester of ethyl phosphonic acid yielded a rubbery polymer which was insoluble in

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ACCESSION NR: AT4020707

the common organic solvents but soluble in hot dimethylformamide. The characteristic viscosity of the block polymer in dimethylformamide was 0.054. With 0.5% azodiisobutyronitrile, a low-molecular viscous polymer was obtained. With higher amounts of this initiator and with benzoyl peroxide, a solid polymer was formed, although in the presence of the latter the reaction proceeded more slowly. The butylisopropenyl ester of ethylphosphonic could not be polymerized. In order to modify the properties of polystyrene, polymethylmethacrylate and polyacrylonitrile, both ethylphosphonic acid esters were copolymerized with these polymers at 50-70C in nitrogen, for 18 hours (for methylmethacrylate) up to 200 hours (for styrene), in the presence of 1 mol. % axodiisobutyronitrile based on the amount of monomers. The experimental data are tabulated, and the copolymers obtained are described. The thermomechanical properties of these copolymers are shown in graphs of deformation against temperature. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova (Kazan Chemicotechnological Institute)

SUBMITTED: 04Jun62 DATE ACQ: 20Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 001

Card 2/2

S/0190/64/006/002/0281/0286

ACCESSION NO: AP4017639

AUTHORS: Teytel'baum, B. Ya.; Gizatullina, V. G.; Yagfarova, T. A.

TITLE: On the methods of thermomechanical curves of polymers. 4. The investigation of powder specimens (beginning with this (No. 4) report, the major title also covers earlier sections 1, 2, and 3)

SOURCE: Vy*sokomolekulyarny*ye soledineniya, v. 6, no. 2, 1964, 281-286

TOPIC TAGS: polymer, powder polymer, compaction, tablet formation, deformation, pressing process, relaxation, elastic deformation, vitrification, thermomechanical curve, polyvinylchloride

ABSTRACT: Problems associated with the recording of thermomechanical curves of powdered materials compression have been considered. Powdered polyvinylchloride PF-4 was used as the issuing material. Tablets, 4 x 2 mm, were pressed under 420 - 4200 kg/cm^2, sustaining force-induced elastic deformations. When heated under various loads, at temperatures up to 300C, the tablets expanded (the higher the original compression load, the greater the expansion). Beyond 2100 kg/cm^2 the expansion decreased. It was also found that the duration of the original compression had an effect on the subsequent expansion. The maximum expansion was obtained

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ACCESSION NO: AP4017639

in tablets held in compression for 2 minutes. Heating of the tablets for 1 hour at 100C resulted in a loss of their subsequent ability to expand, their behavior being that of a typical amorphous linear polymer. Samples of powdered polyvinylchloride containing various quantities of comminuted sand or aluminum oxide (when pressed into tablets) showed a lesser degree of expansion, as compared with the 100% pure polymer samples. These samples acquired the capacity of being compressed into monolithic blocks under proper application of heat and pressure. Polycondensation of powdered diallylphthelate with benzylmethacrylate at 150C for 30 minutes yielded products free of expansion ability. Thanks are given to B. M. Zuyev for a sample of the material. Orig. art. has: 5 charts.

ASSOCIATION: Khimicheskiy institut im. A. E. Arbusova AN SSSR (Chemical Institute AN SSSR); Institut organicheskoy khimii AN SSSR, Kazan' (Institute of Organic Chemistry AN SSSR)

SUBMITTED: 12Dec62 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 005 OTHER: 000

Card 2/2

ACC NR: AP6034907 SOURCE CODE: UR/0382/66/000/002/0061/0072

AUTHOR: Vulis, L. A.; Gusika, P. L.; Kusainov, M. K.; Shmelev, Yu. K.; Yaglenko, V. T.

ORG: none

TITLE: Mercury flow in a trough in a transverse magnetic field

SOURCE: Magnitnaya gidrodinamika, no. 2, 1966, 61-72

TOPIC TAGS: transverse magnetic field, mercury, magnetogasdynamics, magnetohydrodynamics, mercury flow, free surface flow

ABSTRACT: The article presents some results of systematic observations of a stationary flow of mercury in a horizontal trough, with insulated walls and electrodes in the presence of a transverse magnetic field. This method was found to be valuable in the study of magnetohydrodynamics and magnetogasdynamic phenomena. Qualitative characteristics were obtained on the structure of the hydraulic jump in the magnetic field and the influence of the latter on the intensity and location of the hydraulic jump in the range of values studied for the determin-

UDC: 538.4

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ACC NR: AP6034907

ing parameters. Experimental data for continuous subcritical and theoretical flows obtained in a one-dimensional approximation were compared, and qualitative characteristics obtained. Results of tests confirmed the qualitative deductions from the analysis of equations of reversal effects and the possibility of using an approximate computation based on a one-dimensional diagram. With a certain correlation of parameters, a practically smooth virtually jumpless transition from the supercritical to the subcritical flow was observed. Orig. art. has: 13 figures, 13 formulas. [GC]

SUB CODE: 11, 20, 09/ SUBM DATE: 31Jan66/ ORIG REF: 006/OTH REF: 003/

Card 2/2

SPIROVA, V., aspirant; YAGLINA, K.; RITMAN, I.; GINSBURG, V.

Assembly-line work and wage payment systems. Sots. trud 6 no.8: 105-115 Ag '61. (MIRA 14:8)

1. Kafedra politekonomii Ural'skogo gosudarstvennogo universiteta (for Spirova). 2. Nachal'nik otdela truda i zarabotnoy platy fabriki "Uralobuv'" (for Yaglina). 3. Nachal'nik konstruktorskogo byuro Moskovskoy obuvnoy fabriki imeni Kapranova (for Ritman). 4. Starshiy inzh. gruppy organizatsii proizvodstva fabriki "Uralobuv" (for Ginsburg).
(Shoe industry) (Assembly-line methods)
(Wage payment systems)

BEYM, D.F.; YAGLINA, K.Z.

New wage systems for workers on conveyer production lines. Kozh.-obuv.prom. 3 no.7:4-6 Jl '61. (MIRA 14:9)
(Wage payment systems) (Shoe industry)

YAGLINSKIY V. A.

USSR/Human and Animal Morphological Morphology. (Normal S-4
Circulatory System

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88438

Author : Yaglinskiy, V. A.

Inst : Not Given

Title : On the Pathological Morphology of the Myocardial Infarct

Orig Pub: Zdavookhr. Kazakhstana, 1955, No. 10, 27-30

Abstract: On the basis of a morphological study of 23 myocardial infarcts, the author states that the clinical picture of myocardial infarction does not always coincide with the morphological changes in the heart muscle and blood vessels. Functional factors play an important role in the genesis of myocardial infarction. Obliterating thrombi are found more frequently in the descending branch of the left coronary artery.

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USSR/Human and Animal Morphology (Normal and Pathological). Circulatory System S-4

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88438

Abstract: Infarction may occur without thrombosis of the coronary arteries and also in the absence of atherosclerotic changes in them. Some data concerning atypical cases of myocardial infarction were presented. -- A. Kuzimina-Prigradova

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YAGLINSKIY, V. A. Cand Sci -- (diss) "Data on the pathomorphology and pathogenesis of disturbances of coronary blood circulation." Alma-Ata, 1957. 12 pp 20 cm. (Kazakh State Med Inst im V.M. Molotov), 100 copies
(KL, 7-57. 110)

83

EXCERPTA MEDICA Sec 18 Vol 3/3 Cardio. Dis. Mar 59

777. **The nervous apparatus of the heart in disturbances of the coronary circulation (Russian text)** YAGLINSKY V. A. *Arkh. Patol.* 1958, 20/5 (28-33) Illus. 4

Sixty-three hearts of patients who had died between the ages 46—66 from angina pectoris or infarction of the heart were examined, special attention being paid to the extra- and intramural nervous plexus (silver-impregnation method after Bielschowsky-Gross). In coronary circulation disturbances the nerves showed irritative phenomena, dystrophy, atrophy and sclerosis; in cases of angina pectoris without infarction, only irritative phenomena and dystrophy were seen. In late stages of infarction main lesions were proliferative and sclerotic processes. Multiple infarctions and those occurring in hypertension develop on the basis of neural structural changes, which often leads to a particularly severe clinical course, occasionally even without pain.

Brandt - Berlin (V, 18)

Chair of Pathological Anatomy, Kazan State Med Inst.

SHIYANEVSKIY, A.Ya.; YAGLINSKIY, V.A.

Case of a cerebral tumor metastasizing into the internal organs. Zdrav.Kazakh. 22 no.7:73-75 '62. (MIRA 16:1)

1. Iz kafedry nervnykh bolezney i kafedry patologicheskoy anatomii Aktyubinskogo meditsinskogo instituta.
(BRAIN—TUMORS)

YAGLINSKIY, V.A.; SHABANOV, A.M.

Pathomorphology and histochemistry in experimental chromium poisoning. Izv. AN Kazakh. SSR Ser. med. nauk 11 no.3:70-80 '64 (MIRA 18:1)

Yaglom, I. M., and Yaglom, A. M. T ngential Poincar models of plane geometries of constant curvature. C. R. (Doklady) Acad. Sci. URSS (N.S.) 53, 401–404 (1946).

In a Euclidean plane, an elliptic plane f curvature K^2 or a hyperbolic plane of curvature $-K^2$ dete mine an oriented straight line L by its angle φ with a fixe s-axis A and the abscissa s of the point $A \cap L$. Various ag eements are necessary if $A \cap L$ is not defined. For insta , if in the hyperbolic plane L does not intersect A and ot parallel to A and d and s' are, respectively, the lengt (with a proper sign) and the abscissa of the foot of the ommon perpendicular of A and L, then $\varphi = id$ and $s = s'$ $iK^{-1}\pi/2$. Using three types of complex numbers: $x+iy$ wi h $i^2=-1$, $x+\epsilon y$ with $\epsilon^2=0$, $x+\epsilon y$ with $\epsilon^2=1$, the numb r z defined by $z=\tan(\varphi/2)(\cos sK+i\sin sK)$ or $z=\tan$ $\varphi/2)(1+\epsilon s)$ or $z=\tan(\varphi/2)(\cosh sK+\epsilon\sinh sK)$ is calle the complex coordinate of the line (φ, s) in the ellipti , Euclidean or hyperbolic plane, respectively ($\tan(\varphi/2$ $\cosh sK$ and $\tan(\varphi/2)\sinh sK$ are always real). After troduction of ideal lines the substitution $z'=(az+b)/(cz+$ $)$, where a, b, c, d, z are complex numbers of the same typ and $ad-bc$ is not a zero divisor, yields a one-to-one mappi g of the corresponding set of lines on itself. Exactly thos substitutions correspond to motions in their respective pl nes for which d is conjugate to a and c to b.

H. Busemann.

Source: Mathematical Reviews, Vol 8 No. 6

Yaglom, A.M.

2000

Yaglom, A. M. The ergodic principle for Markov processes with stationary distributions. Doklady Akad. Nauk SSSR (N.S.) 56, 341–349 (1947). (Russian)

The author considers Markov processes with transition probabilities $p(t, x, E)$ (the probability of a transition from x into the set E in time t). He supposes that there is a stationary absolute probability distribution, that is, a distribution $W(A)$ satisfying $W(E)=\int p(t, x, E)W(dA_x)$ for all E, and is interested in the asymptotic properties of $p(t, x, E)$ under these hypotheses. Previous authors have usually presupposed properties of $p(t, x, E)$ which could be used to prove the existence of stationary limiting distributions for fixed x, $t\to\infty$. However, the reviewer [Trans. Amer. Math. Soc. 44, 87–150 (1938)], Yosida [Proc. Imp. Acad. Tokyo 16, 43–48 (1940); these Rev. 1, 343] and Kakutani [Proc. Imp. Acad. Tokyo 16, 49–54 (1940); these Rev. 1, 343] have also made the hypothesis of a stationary distribution, but without his further hypotheses have obtained weaker results. Under the further hypothesis that $p(t, x, E)$ is absolutely continuous with respect to $W(A)$, so that there is a density $p(t, x, y)$ and under the hypothesis that $p(t, x, y)$ is continuous and positive, it is stated that $\lim_{t\to\infty} p(t, x, E)=W(E)$ for all x, E. Proofs are omitted but the method is indicated; it goes back to an analysis of averaging used by Khintchine in statistical mechanics [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 7, 111–122 (1943); these Rev. 5, 1 57] which yields the following theorem. Let $W(E)$ be a stationary distribution for a Markov process, and suppose that there is a positive density of transition as above. Then if any initial distribution is assigned, there is a corresponding density of distribution $q(t, x)$ at time t, and if $\Phi(\ )$ is any strictly convex function ($\xi\geqq 0$) the integral $\int\Phi[q(t, x)]W(dA_x)$ is monotone nonincreasing in t, and there is equality for two values t_0 and t_1 if and only if $q(t_0, x)\equiv q(t_1, x)\equiv 1$; the value of this integral has its absolute minimum for $q\equiv 1$. *J. L. Doob* (Urbana, Ill.).

Source: Mathematical Reviews, 1948, Vol 9, No. 3

Yaglom, A. M.

Yaglom, A. M. On the statistical treatment of Brownian motion. Doklady Akad. Nauk SSSR (N.S.) 56, 691-69 (1947). (Russian)

Kolmogoroff [Math. Ann. 113, 766–771 (1936)] found conditions necessary and sufficient that a Markov process whose variables take on values in a Riemann manifold define a reversible process in the sense that, if $f(t, x, y)$ is the probability (density) of a transition from x to y in time $t>0$ and $g(t, y, x)$ the probability of a transition from y to x in time $-t$, then $f=g$. The author considers the corresponding problem in which the manifold of the variables represents the phase space of a physical system so that the forward and reverse transition probability densities are now $f(t, x, \dot{x}, y, \dot{y})$ and $g(t, y, \dot{y}, x, \dot{x})$. The appropriate definition of reversibility is now $f(t, x, \dot{x}, y, \dot{y}) = g(t, y, -\dot{y}, x, -\dot{x})$. He makes the usual Brownian motion hypothesis that in the Fokker-Planck equations the matrix of dispersion coefficients does not depend on the velocities and that the average motion coefficients depend linearly on the velocities. The Fokker-Planck equations are written in invariant form and the desired necessary and sufficient conditions become essentially that a certain symmetric tensor have a zero covariant derivative and that a certain vector be a gradient. The general form of the stationary limiting distribution ($t \to \infty$) is found, and turns out, if simple identifications are made, to be the canonical distribution of Gibbs.

J. L. Doob (Urbana, Ill.).

Source: Mathematical Reviews, 1948, Vol 9, No. 3

Yaglom, A.M.

Yaglom, A. M. Certain limit theorems of the theory of branching random processes. Doklady Akad. Nauk SSSR [illegible] (Russian)

[illegible]

[illegible] le comportement asymptotique des probabilités $P_n(t)$ d'une telle transformation en t unités de temps, lorsque $t\to+\infty$. On introduit la fonction génératrice $F(t, x)=\sum_{i=0}^{\infty}P_i(t)x^i$, $f(x)=F(1, x)$, et on utilise la relation fondamentale [illegible] distribution limite [illegible] génératrice [illegible] satisfait à

$$F[f(x)]=aF(x)+(1-a),\quad F'(1)=1/K,$$

$$K=\lim_{t\to\infty}(1-f[F(t,x)])/a^t.$$

Soit $\eta_t=\mu_t/M^*(t)$, où μ_t est le nombre des descendants d'un objet et $M^*(t)=a^tQ(t)$. Théorème 2. Si $a=1$, $b\neq0$ et [illegible] finies, alors $P\{\eta_t<y\mid\eta_t>0\}$ tend vers 0 pour $y<0$ et $1-e^{-y}$ pour $y\geqq0$. Théorème 3. Si $a>1$ et $b\neq a^2-a$ est finie, alors cette distribution conditionnelle tend vers une distribution limite dont la fonction caractéristique $\psi(\tau)$ satisfait à $f[(1-\lambda)\psi(\tau)+\lambda]=(1-\lambda)\psi(a\tau)+\lambda$, $\psi'(0)=i$.

M. Loève (New York, N. Y.).

Source: Mathematical Reviews, 1948, Vol 9, No. 3

Yaglom, A. M.

4000

Yaglom, A. M. Homogeneous and isotropic turbulence in ~~a viscous~~ compressible fluid. Izvestiya Akad. Nauk SSSR. Ser. Geograf. Geofiz. 12, 501–522 (1948). (Russian)

The author considers the decay of isotropic turbulence in a compressible fluid neglecting the third order correlation functions. The equations for the second order correlations are then developed and reduced to a system which determines seven such functions. One of these corresponds to that for an incompressible field, the other six to an irrotational field. Considerable discussion is given to the fact that the latter field contains acoustic waves propagating with acoustic velocity and a nonpropagating entropy wave. The Fourier transforms of the correlation functions are written down and the decay rate is determined as a function of frequency. [Since the transfer terms were omitted, all of the results could have been based as readily on a discussion of a random acoustic field in a viscous field as on a turbulent field.]

G. F. Carrier (Providence, R. I.)

Source: Mathematical Reviews, 1950 Vol 11 No. 6

YAGLOM, A.M.

Source: Mathematical Reviews, Vol No

Gel'fand, I. M., and Yaglom, A. M. General Lo in- variant equat and infinite-dimensional repr nta- tions of the Lo tz group. Akad. Nauk SSSR al Eksper. Teor 18 703 733 (1948) R
[A short ac s paper's main b- lished in Dokl Nauk SSSR (N.S.) (1948); these The authors invariant eq form

(1) $\partial x^k + i\kappa\psi = 0.$

Here the wa x^k an infinite mponents (i.e. finite- or in nsional vector spa linear operat a nonvanis To every Lo mation $x^i \to$ a transform $S\psi$ such that resentation Lorentz group Lorentz inva every Lorentz

(2) $L^i = LS$ hors are mainly the construction ms L^i) satisfying the s (2). Their analys on the infinitesimal re which follow from $x^i + \epsilon^i_k x^k =$ infin- itesimal Lo mation ($g^{00} =$ $g^{ii} = 1$, $g^{ik} = 0$ ($i \neq$ Then $\psi \to \psi'$ $-I^{ki}$ where the infinitesimal generators of tation D well known commut infinitesima transformations imply

(3) $g^{ij}L^k - g^{ik}L$

where [the commutat rentz relations to insure (2) it transform sidered while must be treated ly show n of (3) reduc the following

(4) $[L^0,$ $= 1, 2, 3)$; $[[L,$

the remain ors being defined ($k = 1, 2, 3$ dimensional cited above rather various w nterested in the sion. are theref cover both case. Th owever, cover both
For the 4) the form of the ators L^k own. It is assum repre sentation decomposed into countabl ber of irreducible ions the Lor he irreducible rep (bot finite- a ensional) may ed by pair of nu is integra

Source: Mathematical Reviews, Vol. 10 No. 8

and k_1 an arbitrary complex number. (The two pairs (k_0, k_1) and $(-k_0, -k_1)$ lead to equivalent representations.) The representation space $R_{(k_0,k_1)}$ may be decomposed into $(2k+1)$-dimensional subspaces invariant under spatial rotations and spanned by vectors ξ_p^k (k integral or half integral; $p=k, k-1, \cdots, -k+1, -k$). In general, k assumes the values $|k_0|, |k_0|+1, |k_0|+2, \cdots$, so that $R_{(k_0,k_1)}$ is infinite-dimensional. If $2k_1$ is integral, has the same parity as $2k_0$, and if $|k_1|>|k_0|$, then $R_{(k_0,k_1)}$ is finite-dimensional, and k assumes the values $|k_0|, |k_0|+1, \cdots, |k_1|-1$. (This corresponds, in usual notation, to the representation $D_{jj'}$, where $j=\frac{1}{2}|k_0+k_1|$, $j'=\frac{1}{2}|k_0-k_1|$.) All unitary representations of the proper Lorentz group are obtained either by letting k_1 be purely imaginary, or by choosing $k_0=0$ and k_1 real such that $0<|k_1|\leqq 1$. For a given pair (k_0, k_1), the infinitesimal generators of the corresponding irreducible representation are determined by

$$I^{12}\xi_p^k=ip\xi_p^k,\quad (I^{23}+iI^{31})\xi_p^k=\{(k+p)(k-p+1)\}^{\frac{1}{2}}\xi_{p-1}^k,$$
$$(I^{23}-iI^{31})\xi_p^k=-\{(k+p+1)(k-p)\}^{\frac{1}{2}}\xi_{p+1}^k;$$
$$2I^{03}\xi_p^k=-\{(k+p)(k-p)\}^{\frac{1}{2}}B_k\xi_p^{k-1}+pA_k\xi_p^k$$
$$+\{(k+p+1)(k-p+1)\}^{\frac{1}{2}}B_{k+1}\xi_p^{k+1},$$

with $A_k=2k_0k_1/k(k+1)$, $B_k=\{(k^2-k_0^2)(k^2-k_1^2)/k^2(k^2-\frac{1}{4})\}^{\frac{1}{2}}$. (The sign of B_k may be chosen arbitrarily.)

The form of the operator L^0 [cf. (4)] is determined in a straightforward way. Denote by $R_\tau=R_{(k_0,k_1)}$ the irreducible subspaces of R invariant under the transformations S, and by $\xi_{p\tau}^k$ the vectors which span R_τ. The authors find that (1) $L^0\xi_{p\tau}^k=\sum_{\tau'}c_{\tau\tau'}^k\xi_{p\tau'}^k$, (2) $c_{\tau\tau'}^k$ can be different from zero only if the pair (k_0', k_1') is equivalent to (k_0+1, k_1), (k_0-1, k_1), (k_0, k_1+1), or (k_0, k_1-1) (if $\tau\sim(k_0, k_1)$, and $\tau'\sim(k_0', k_1')$), (3) the coefficients $c_{\tau\tau'}^k$ are uniquely determined by constants $c_{\tau\tau'}$ which may be arbitrarily chosen (for example, the authors obtain $c_{\tau\tau'}^k=c_{\tau\tau'}\{(k+k_0+1)(k-k_0)\}^{\frac{1}{2}}$ if $k_0'=k_0+1$, $k_1'=k_1$, and similar expressions in the remaining cases). If

Yaglom, A. M.

Gel'fand, I. M., and Yaglom, A. M. On Lorentz invariant equations to which correspond a definite charge and a definite energy. Doklady Akad. Nauk SSSR (N.S.) 63, 371–374 (1948). (Russian)

Gel'fand, I. M., and Yaglom, A. M. Pauli's theorem for general Lorentz invariant equations. Akad. Nauk SSSR. Zhurnal Eksper. Teoret. Fiz. 18, 1096–1104 (1948). (Russian)

The first of these two papers merely gives the main results; the second contains the detailed proofs. W. Pauli [Physical Rev. (2) 58, 716–722 (1940)] has proved the following theorem concerning Lorentz invariant equations for wave functions with a finite number of components. For integral spin values neither the charge density nor the total charge of the system described may be (positive or negative) definite, for half integral spin values neither the energy density nor the total energy may be definite, provided the wave equations are differential equations and the expressions for charge and energy density are obtained by differential operations. The authors generalize this theorem to wave functions with an infinite number of components which satisfy the equations studied in a previous paper, more specifically, those equations which are derived from an invariant Lagrangian [cf. the preceding review, to which the reader is referred for details]. Charge and energy density are given by s^0 and T_0^0, respectively [cf. equations (8) and (9) of the preceding review]. By discussing the irreducible representations $\tau\sim(k_0, k_1)$ (where $k_1 = k_1' + ik_1''$) which occur in D_R, the authors establish the following results (in any one of the following statements charge (energy) may be interpreted as either charge (energy) density or total charge (energy)). (A) If, for some τ, $k_1'' \neq 0$, and $2k_1'$ is not integral, neither charge nor energy is definite. (B) If, for some τ, $k_1'' \neq 0$, the charge is indefinite for an integral k_1', and the energy is indefinite for a half integral k_1'. (C) If, for some τ, k_1 is real, but $2k_1$ is not integral, the charge is indefinite for an integral k_0, and the energy is indefinite for a half integral k_0. (D) If, for some τ, both k_0 and k_1 are integral, the charge is indefinite; if both k_0 and k_1 are half integral, the energy is indefinite. There remains the possibility that of the two numbers k_0, k_1 one is integral and the other half integral, as in the two cases (I) and (II) [cf. the preceding review]. The authors assert that in these two cases both charge and energy density are definite. [Reviewer's note. While the assertion concerning the charge density is correct, one can construct solutions with both positive and negative energy densities or total energies. The authors base their proof on the decomposition of the general solution of the wave equation into plane waves with time-like wave vectors; the wave equation, however, also admits plane wave solutions whose wave vectors are space-like or null vectors.]

V. Bargmann (Princeton, N. J.)

Source: Mathematical Reviews, Vol 10 No. 8

Yaglom, A.M.

Gel'fand, I. M., and Yaglom, A. M. Charge conjugation for general Lorentz invariant equations. Akad. Nauk SSSR. Zhurnal Eksper. Teoret. Fiz. 18, 1105–1111 (1948). (Russian)

This paper deals with the applicability of the method of charge conjugation [developed for Dirac's equation by E. Majorana, Nuovo Cimento (N.S.) 14, 171–184 (1937); and H. A. Kramers, Nederl. Akad. Wetensch., Proc. 40, 814–823 (1937)] to the general Lorentz invariant equations studied by the authors in a previous paper [see the second preceding review]. In the absence of an electromagnetic field the equations read $L^k\partial\psi/\partial x^k+i\kappa\psi=0$, where ψ is a vector with a finite or an infinite number of components and κ is a real constant. For an external electromagnetic field given by the four-vector potential φ_k the authors set

$$L^k(\partial\psi/\partial x^k-ie\varphi_k\psi)+i\kappa\psi=0. \qquad (*)$$

The charge conjugate wave function ψ^Q is defined by an anti-linear transformation $\psi^Q=Q\psi$ (i.e., $Q(\psi_1+\psi_2)=Q\psi_1+Q\psi_2$, and $Q(\lambda\psi)=\lambda^*Q\psi$), and it is assumed that (a) ψ^Q satisfies the equation (*) with e replaced by $(-e)$, and (b) $(\psi^Q)'=(\psi')^Q$, where $\psi'=S\psi$ is the Lorentz transformed wave function. (The condition (b) expresses the Lorentz invariance of charge conjugation.) [illegible] (a) implies [illegible] while (b) implies $SQ=QS$. Using the results reviewed above, the authors determine the possible forms of Q. It is found (1) that the operator Q cannot always be defined, since the constants $c_{\tau\tau'}$ of the previous paper must satisfy certain additional conditions, (2) that Q (if it can be defined at all) is (up to a factor) uniquely determined if the equation (*) is irreducible.

(*V. Bargmann* Princeton, N. J.).

Source: Mathematical Reviews, Vol 10 No. 8

YAGLOM, A.M

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Gel'fand, I. M. a [illegible] A. M. General Lorentz invariant equations [illegible] nite representations of the Lorentz group. [illegible] Nauk SSSR (N.S.) 59, 655–658 (1948).

The authors stud[illegible] of the form

(1) [illegible] $\psi = 0$,

where [illegible] $x^2, x^3) = (ct, x, y, z)$, and the function ψ a [illegible] a finite or infinite dimensional linear space R [illegible] operators (matrices) on R. The equation (1) is [illegible] Lorentz invariant if for every Lorentz transformat[illegible] exists an operator S such that [illegible] these operators define a representation of [illegible] group. For a finite dimensional space R, the [illegible] of the matrices L^i has been discussed by H. [illegible] Modern Physics 17, 200–210 (1945); the [illegible] and by R. Potier [C. R. Acad. Sci. Paris 22[illegible] (1946); these Rev. 7, 447]. In this paper the au[illegible] the L^i both for finite and for infinite dimensio[illegible] of the Lorentz group. Assuming the repres[illegible] to be a direct sum of irreducible finite dimen[illegible] unitary infinite dimensional representations, the [illegible] operators L^i from their commutators with [illegible] generators $I^{ik}(= -I^{ki})$ of the representatio[illegible] explicit form. [The infinite dimensional unitar[illegible] have been determined by I. M. Gel'fand and [illegible] Naimark, cf. Acad. Sci. USSR. J. Phys. 10, 93–94 [illegible] 9, 132, [illegible] reviewed above [illegible] Chandra, Proc. Roy. Soc. London Ser. A 18[illegible] (1947); V. Bargmann, Ann. of Math. (2) 48, 56[illegible] (1947); these Rev. 9, 132, 133.] It is always possi[illegible] a Hermitian form (ψ, ψ) invariant under the [illegible] ations S, such that $(L^i\psi, \psi) = (\psi, L^i\psi)$. The eq[illegible] may then be derived from a variation[illegible] principle [illegible] Lagrangian

$$\mathfrak{L} = \kappa(\psi, \psi) + \tfrac{1}{2}i [illegible] \partial\psi/\partial x^i, \psi) - (\psi, L^i\partial\psi/\partial x^i)].$$

If S contains only [illegible] of infinite dimensional representations, the [illegible] masses form a sequence which converges to zero [illegible] ite. The special case where S itself is an [illegible] representation has been treated by E. Majorana [illegible] Nuovo Cimento (N.S.) 9, 335–344 (1932). [illegible] Bargmann (Princeton, N. J.).

Source: Mathematical Reviews, Vol 7 No. 7

Yaglom, A.M.

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Yaglom, A. M. On problems about the linear interpolation of stationary random sequences and processes. Uspehi Matem. Nauk (N.S.) 4, no. 4(32), 173-178 (1949). (Russian)

Let $x(t)$ be the random variables of a stationary (wide sense) process, with $E\{x(t)\}=0$. Let K be any set of parameter values and let K' be the complement of K. If $s\epsilon K'$ the author considers the problem of approximating $x(s)$ by linear combinations of the $x(t)$'s with $t\epsilon K$ and limits in the mean of such linear combinations. The approximation is to be best in the sense of least squares. The mean square error of the best approximation is evaluated in the following cases: (1) t takes on all real values, K consists of the integers; (2) t is integral-valued, K consists of the odd integers; (3) t is integral-valued, K' consists of n ($<\infty$) integers. The last case was solved for $n=1$ by Kolmogorov [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 5, 3-14 (1941); these Rev. 3, 4]. *J. L. Doob* (Ithaca, N. Y.).

Source: Mathematical Reviews, Vol 11 No.

YAGLOM, A.M.

Yaglom, A. M. On the statistical reversibility of Brownian motion. Mat. Sbornik N.S. 24(66), 457–492 (1949). (Russian)

Further details and proofs of material discussed in an earlier paper [Doklady Akad. Nauk SSSR (N.S.) 56, 691–694 (1947); these Rev. 9, 150].

J. L. Doob.

Source: Mathematical Reviews, Vol 11 No. 1

YAGLOM, A. M.

Yaglom, A. M. On the acceleration [illegible] flow. Doklady Akad. Nauk [illegible] (1949). (Russian)

A general theory of locally [illegible] Reynolds numbers has been [illegible] [C. R. (Doklady) Acad. Sci. [illegible] (1941); 32, 16–18 (1941); the [illegible] Obuhov [ibid., 19–21 (1941) [illegible] Géograph. Géophys. [Izvestia [illegible] 453–466; same Doklady (N.S.) 66, 1[illegible] 646 (1949); these Rev. 3, 221; 4, 12[illegible]; 10 [illegible] the following review]. In the [illegible] applies this theory to the [illegible] in a turbulent flow by consid[illegible] acceleration at a point of a fl[illegible] tity. From the Navier-Stokes [illegible] that

$$\sum_{i=1}^{3}\overline{(dv_i/dt)^2}=\rho^{-2}\sum_{i=1}^{3}\overline{(\partial p/\partial x_i)^2}+\ldots$$

Neglecting the third term [illegible] the first two terms by mea[illegible] of the field of pressure and [illegible] tively, the author, followin[illegible] Acad. Sci. URSS (N.S.) 32 [illegible] 221], Millionščikov [illegible] Géophys. [Izvestia Akad. Nauk SSSR [illegible] Rev. 4, 121] and Kolmogorof[illegible]

$$\rho^{-2}\sum_{i=1}^{3}\overline{(\partial p/\partial x_i)^2}=\ldots 1.1\ldots$$

where [illegible] 0.4 [illegible] Townsend [illegible] Soc. 44, 560–565 (1948); Ba[illegible] these Rev. 9, 97]. Comparison [illegible] shows that the acceleration [illegible] at high Reynolds numbers [illegible] of pressure gradients [cf. Heisenberg [illegible] 657 (1948); these Rev. 11, [illegible]

Source: Mathematical Reviews, Vol 11 No.4

YAGLOM, A.M.

Source: Mathematical Reviews, 1950 Vol 11 No. 7

Yaglom, A. M. On the local structure of the temperature field in a turbulent fluid. Doklady Akad. Nauk SSSR (N.S.) 69, 743–746 (1949). (Russian)

Recently Obuhov [see the preceding review] investigated by the method of similarity and dimensional considerations the local structure of the temperature field in a turbulent flow of an incompressible viscous fluid at very large Reynolds numbers. The author improves some of these results by direct consideration of the equations of hydrodynamics. Under the assumptions made by Obuhov concerning the nature of the flow, the field of velocities satisfies the usual equations of motion of a viscous incompressible fluid, while the temperature field satisfies the equation

$$\partial T/\partial t+\sum_{j=1}^{3} v_j\,\partial T/\partial x_j=\lambda\Delta T, \tag{1}$$

where λ denotes the thermometric conductivity. In the case of very large Reynolds numbers the turbulent motion may be considered as locally homogeneous and locally isotropic [Kolmogoroff, C. R. (Doklady) Acad. Sci. URSS (N.S.) 30, 301–395 (1941); these Rev. 2, 327]. Under this assumption the author deduces the relation

$$D_{lTT}(r)-2\lambda\, dD_{TT}(r)/dr=-\tfrac{4}{3}\bar{N}r, \tag{2}$$

connecting the structure functions

$$D_{lTT}(r)=\overline{[v_l(M')-v_l(M)][T(M')-T(M)]^2},$$
$$D_{TT}(r)=\overline{[T(M')-T(M)]^2},$$

Source: Mathematical Reviews, 1950 Vol 11 No. 7

It is to be noticed that throughout the paper the case of fully developed turbulence of dynamical origin is considered and the pulsations of the temperature are assumed to be so small (in comparison with the mean absolute value of the temperature of the medium) that they do not influence sensitively the régime of the turbulent pulsations of the velocity of the flow. Radiative heat transfer and the heating due to dissipation of mechanical energy of the turbulence are neglected. [In formula (24) of the text and in the preceding formula there are misprints.] *E. Leimanis.*

Source: Mathematical Reviews, Vol 12 No. 10

YAGLOM, A.M.

X Obuhov, A. M., and Yaglom, A. M. The microstructure of a turbulent flow. ~~Akad. Nauk SSSR~~ Prikl. Mat. Meh. 15, 3–26 (1951) (Russian)

This is a joint exposition of work on locally isotropic turbulence by the authors which has been published in the last few years in separate notes. Let M and M' be two points at a distance r in a turbulent fluid, $v_l(M)$ and $w_l(M')$ the components of the velocity and acceleration respectively, in the direction MM', $p(M)$ the pressure, and

$$D_{ll}(r)=\overline{[v_l(M')-v_l(M)]^2},\quad \Pi(r)=\overline{[p(M')-p(M)]^2},$$

$$A_{ll}(r)=\overline{w_l(M)w_l(M')}.$$

In the first part of this paper the known fundamental equations of locally isotropic turbulence are derived and then the behavior of $D_{ll}(r)$ [illegible] under the assumption that the skewness $S=D_{lll}(r)/$[illegible] is a constant (≈ -0.4) for the whole range of r [illegible]hov, Doklady Akad. Nauk SSSR 67, 643–646 (1949); these Rev. 11, 66. Reviewer's note: The most recent measurements of S by R. W. Stewart [Proc. Cambridge Philos. Soc. 47, 146–157 (1951), especially pp. 156, 157] indicate that S is not constant in either r or the Reynolds number.]

In part two the behavior of $\Pi(r)$ is computed making use of the above assumption on S and an additional assumption that the fourth moments of the velocity field behave as in a Gaussian distribution [cf. Obuhov, ibid. 66, 17–20 (1949); these Rev. 10, 757]. In the last part the accelerations and the pressure gradients are considered [cf. Yaglom, ibid. 67, 795–798 (1949); these Rev. 11, 280] and A_{ll} is computed assuming S constant. In the first and last parts the corresponding quantities for the components normal to MM' are also considered (so that the corresponding tensors may be constructed). The computed results are presented graphically in suitable nondimensional form. The asymptotic values for $r\to 0$ and $r\to\infty$ are also considered in each case. [See also the following review.] J. V. Wehausen.

USSR/Mathematics - Probability Sep/Oct 52

"Introduction Into Theory of Stationary Stochastic Functions," A. M. Yaglom

"Usp Matemat Nauk" Vol 7, No 5(51), pp 3-168

FA 242T71

The main purpose of this article is to give as elementary as possible and, at the same time, a mathematically strict exposition of the problem of extrapolation and filtration of stationary stochastic functions (sequences and processes). A complete bibliography (Soviet and Western) is given (101 works). Discusses: probability, statistics, brownian movements,

242T71

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time series, randomness, harmonic analysis, Wiener's theory of prediction, moving averages, smoothing, fluctuations, tracking, turbulence, correlation.

242T71

YAGLOM, A. M.

Jul/Aug 53

YAGLOM, A. M.

USSR/Geophysics - Barotropic Atmosphere

"Dynamics of Large-Scale Processes in a Baratropic Atmosphere," A. M. Yaglom,

Geophys Inst, Acad Sci USSR

Iz Ak Nauk SSSR, Ser Geofiz, No 4, pp 346-369

Investigates the linearization of the system of eqs describing the dynamics of a barotropic atm. Linearization is effected by averaging according to altitude. The solutions for this system fall into two classes: (1) the "wave solution," which describes rapidly propagating gravitational waves and (2) the solution that describes slow processes, which reduce in the "plane earth" approximation to a geostrophic wind field. Discusses 2 methods for eliminating the wave solutions: (1) method which the eq of continuity is replaced by condition of incompressibility and (2) the method of I. A. Kibel' expanding all functions in powers of a certain small parameter. In the case of the processes on a planetary scale (taking the earth's sphericity into account) the first method leads to the solutions of Ye. N. Blinova and the second solution allows one to obtain corrections to these solutions which take into consideration the effect of compressibility.

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YAGLOM, A.M.

GNEDENKO, B.V.; KHINCHIN, A.Ya.; LEVKOVICH, V.L. [authors]; YAGLOM, A.M. [reviewer].

"Elementary introduction to the theory of probabilities." B.V.Gnedenko, A.IA.Khinchin; "Theory of probabilities." V.L.Levkovich. Reviewed by A.M.IAglom. Sov.kniga no.8:3-5 Ag '53. (MLRA 6:8)

(Probabilities) (Gnedenko, B.V.) (Khinchin, Aleksandr IAkovlevich, 1894-) (Levkovich, V.L.)

YAGLOM, A. M.

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Yaglom, A. M., and Yaglom, I. M. An elementary derivation of the formulas of Wallis, Leibnitz and Euler for the number π. Uspehi Matem. Nauk (N.S.) 8, no. 5(57), 181–187 (1953). (Russian)

Mathematical Review.
June 1954
Number Theory

10-5-54

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YAGLOM, A.M.

Mathematical Reviews
Vol. 15 No. 3
March 1954
Analysis

6-23-54

Yaglom, A. M., and Pinsker, M. S. Random processes with stationary increments of the nth order. Doklady Akad. Nauk SSSR (N.S.) 90, 731–734 (1953). (Russian)

The authors study continuous-parameter stochastic processes whose nth order differences are stationary in the wide sense, finding the spectral representation of such a process and the corresponding form of the covariance function. The case $n=1$ was treated by Kolmogorov [C. R. (Doklady) Acad. Sci. URSS (N.S.) ~~26, 6-9, 115-118~~ (1940); these Rev. 2, 220].

J. L. Doob (Urbana, Ill.).

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YAGLOM, A.M.

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Yaglom, A. M., i Yaglom, I. M. Neèlementarnye zadači v èlementarnom izloženii. [Non-elementary problems in an elementary exposition.] Gosudarstv. Izdat. Tehn.-Teor. Lit., Moscow, 1954. 543 pp. 10.15 rubles.

This book is divided into three parts. The first part contains 170 problems. The second part, about four-fifths of the book, contains the details of the solutions. The third part contains the answers, where answers are required, and short hints. This organization allows the student to adjust his use of the book to his ability and independence. The problems vary in difficulty from simple counting problems requiring only ingenuity to problems requiring considerable mathematical maturity for their solution. Difficult problems are indicated with one, two, or three stars, in order of difficulty. For example, the derivation of Stirling's formula for $n!$ is a three-star problem. There are two sections of problems. The first contains combinatorial problems and probability problems. The second (harder) section contains miscellaneous problems, involving relations between points and lines, topology, evaluation of infinite series, number theory, and so on. The book should be a useful source of problems for teachers and students.

J. L. Doob (Urbana, Ill.).

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Yaglom, A.M.

MS 1-F/W

Yaglom, A. M. Theory of extrapolation and filtering of random processes. Ukrain. Mat. Ž. 6 (1954), 43–57. (Russian)

Expository lecture, leading to the two papers reviewed below.

J. L. Doob (Urbana, Ill.).

FD-1449

YAGLOM, A.M.

USSR/Electricity

Card 1/1 : Pub. 41-3/17

Author : Ovseyevich, I. A. and Yaglom, A. M., Moscow

Title : Monotonic transient processes in homogeneous long lines

Periodical : Izv. AN SSSR, Otd. tekh. nauk 7, 13-20, Jul 1954

Abstract : Established canonical form of propagation constant of homogeneous long lines in which the constant component of voltage or current is transmitted without attenuation and time functions have a monotonically increasing character. Shows that attenuation and phase (the latter correct to linear component) of such a line must be power functions of frequency with index between zero and unity. The obtained results are used for study of time functions possible for homogeneous lines. Ten references.

Institution :

Submitted : May 15, 1954

124-58-9-10075

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 92 (USSR)

AUTHOR: Yaglom, A. M.

TITLE: Accounting for the Inertia of Meteorological Instruments in Measurements Made in a Turbulent Atmosphere (Ob uchete inertsii meteorologicheskikh priborov pri izmereniyakh v turbulentnoy atmosfere)

PERIODICAL: Tr. Geofiz. in-ta. AN SSSR, 1954, Vol 24, pp 112-162

ABSTRACT: The measured meteorological characteristic v(t) is considered as a random function of time with the given structural function

$$D(\tau) = \overline{[v(t+\tau) - v(t)]^2}$$

The measuring instrument can be described by an operator which establishes a new function, namely, the instrument reading u(t), in relation to the function v(t). This leads to the problem of the determination of the statistical characteristics (primarily the mean values and the scatter) of the random function u(t) according to the known function $D(\tau)$ and the parameters of the instrument. At the outset the examination is focused on a linear

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124-58-9-10075

Accounting for the Inertia of Meteorological Instruments in Measurements (cont)

instrument, the readings of which are related to the true values of the measured quantity by the formula

$$u(t) = \int_0^{\infty} A(\tau)\, v(t-\tau)\, d\tau$$

where $A(\tau)$ is the dynamic characteristic of the instrument which can be obtained from the calibration of the instrument. For example, we shall obtain $A(\tau) = u'(\tau)/V$ if, by means of a given instrument, we measure a quantity $v(t)$ that is equal to zero for $t \leq 0$ and equal to a constant V for $t > 0$. Instruments with the simplest dynamic characteristics $A(\tau) = T^{-1} \exp(-\tau/T)$, where T is the time constant for the given instrument, are examined in detail. In this case the mean values of the measured quantity and of the instrument readings coincide, while their respective scatters are related to one another as follows:

$$\sigma_v^2 = \sigma_u^2 + \Delta_v^2$$

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124-58-9-10075

Accounting for the Inertia of Meteorological Instruments in Measurements (cont.)

where

$$\Delta_v^2 = \frac{1}{2T}\int_0^\infty \exp\left(-\frac{\tau}{T}\right) D(\tau)\, d\tau$$

is the mean square error of the instrument. For example, $\Delta_v^2 = 1/2\,\Gamma(1+\beta)\,D(T)$ for $D(\tau) = C\tau^\beta$. By way of examples wind-velocity measurements by means of a "Fuss" (Sprung-Fuess, Transl. Ed. Note) anemometer and temperature measurements by means of various types of instruments are considered. A formula is derived to tie the structural functions of the quantities u(t) and v(t) together. An example of a nonlinear instrument is provided by a rotor-type anemometer which is described by the equation

$$L\frac{du}{dt} = v(v-u) + \alpha(v-u)^2$$

(where the parameter L is termed the "synchronization path" of the anemometer). Setting $v(t) = v_0 + \varepsilon v_1(t)$, where v_0 is the mean value, the solution for u(t) is sought in the form of a series according to powers of ε. This solution leads to

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124-58-9-10075

Accounting for the Inertia of Meteorological Instruments in Measurements (cont.)

the expression

$$\overline{v}-\overline{u} = -\frac{1+\alpha}{2L}\int_0^\infty \exp\left(-\frac{\tau v_0}{L}\right) D(\tau)\, d\tau$$

for the systematic error of the anemometer. The random error is determined with an accuracy of up to the terms of ε^2 order, as if the anemometer were a linear instrument with a time constant $T=L/v$. Examples are considered in which $v(t)$ is a simple periodic function. In conclusion some data are given on the variability and the structural function of the wind velocity within the surface layer of the atmosphere. Bibliography: 29 references.

A. S. Monin

1. Meteorological instruments--Performance 2. Meteorological instruments--Mathematical analysis 3. Atmosphere--Turbulence

Card 4/4